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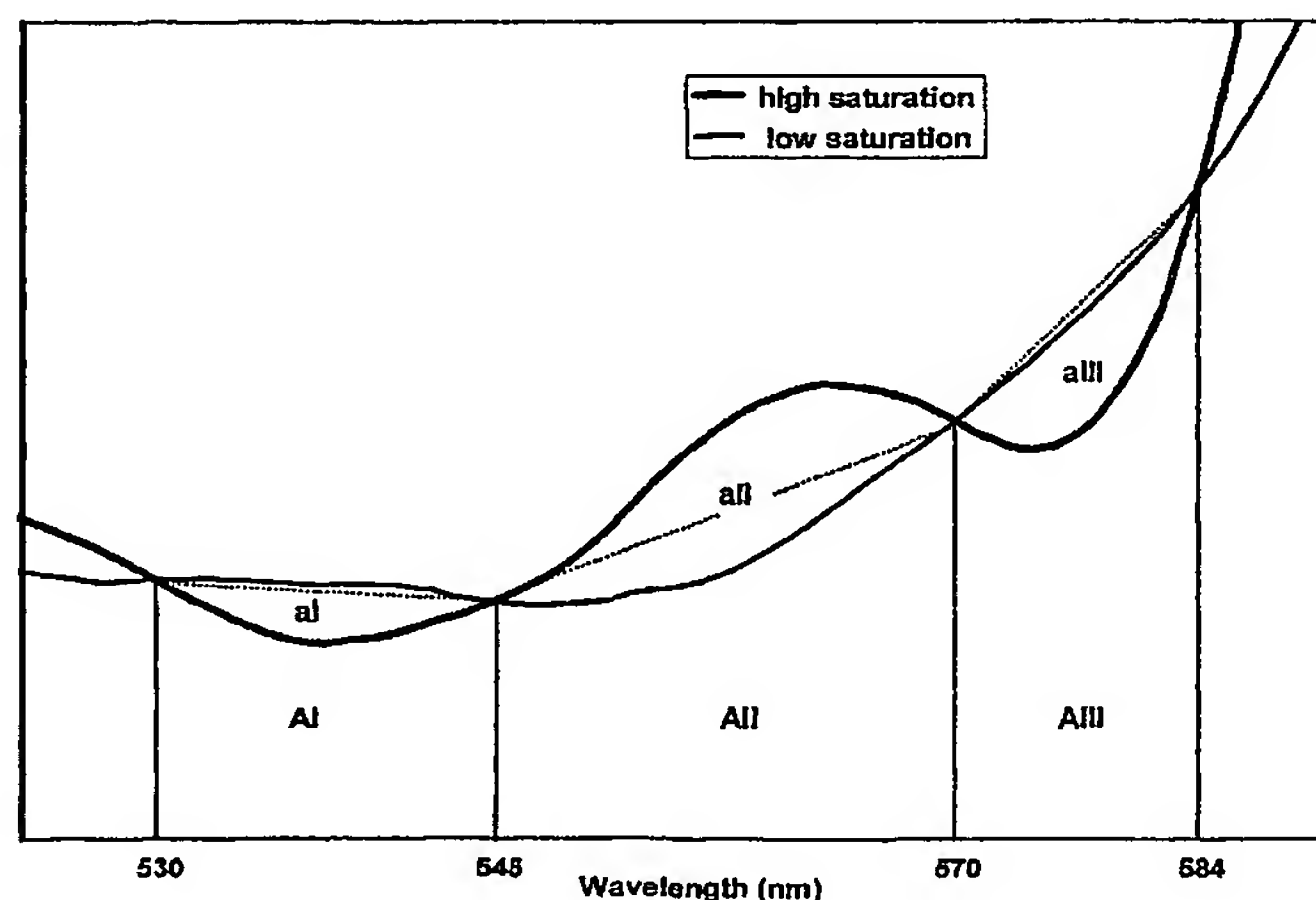
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[Continued on next page]

(54) Title: A METHOD FOR EVALUATING RELATIVE OXYGEN SATURATION IN BODY TISSUES



(57) Abstract: A new method was discovered to analyze continuous spectral curves to determine relative hemoglobin oxygen saturation, using spectral curves collected from a continuous range of wavelengths from about 530 nm to about 584 nm, including spectra from transmitted or reflected light. Using isosbestic points and curve areas, a relative saturation index was calculated. With this method, noninvasive, *in vivo* measurement of relative oxygen saturation was made using light reflected from blood vessels in the eye and to map and measure relative changes in hemoglobin oxygen saturation in primate retinal vessels and optic nerve head in response to controlled changes in inspired oxygen and intraocular pressure (IOP). This method could also measure oxygen saturation from other blood vessels that reflect light sufficient to give a clear spectra from the blood hemoglobin. Changes in blood oxygen saturation can be monitored with this method for early detection of disease.

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